TEM DUST ANALYSIS M22963 005

McGarvey, Heberling, Sullivan & McGarvey

*

Client Sample ID: 5

Sample Area/ Volume:	72 cm2	Date Analyzed:	2/4/00
Filter Type:	MCE 47mm	Analyst:	Al Harmon
Pore size:	0.45	Scope Number:	2
Effective Filter Area:	1297	Accelerating Voltage:	100 KV
Sample type:	Dust	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 25 %	Grid_box:	5674

Str < 5um:	1	Number of grids:	2	#1: 114	#3: 114	Average Grid Size:	0.012939
Str ≥5um:	3	Number of openings:	10	#2: 114	#4: 113	Total Area Analyzed:	0.129
Total Str:	4						

Volume Filtered 5 ml

Dilution Factor 33.33333

Str / sqr ft	1.725E+07	Str / cm2	1.856E+04
Str / sqr ft >=5	1.293E+07	Str / cm2 >=5	1.392E+04

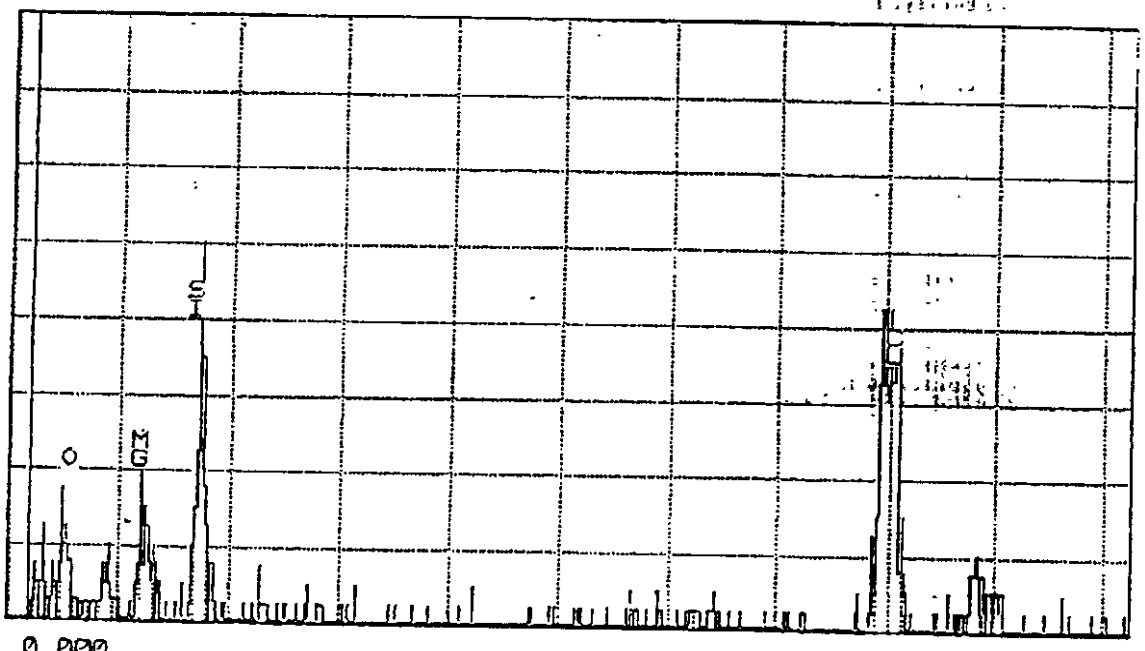
Str#.	SquareID:	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
	B6-H8		NSD					
1	F10	AN	F	5.00	0.30	X	X	Print Out
	B7		NSD					
2	C3	AN	F	2.00	0.20	X	X	X
	F3		NSD					
3	B7-C8	AN	F	8.00	0.50	X	X	X
4	D6	AN	F	6.00	0.30	X	X	X
	B3		NSD					
	E1		NSD					
	H4		NSD					

M22963 005 Sample Comments:

7708663259

MATERIALS ANALYTICAL SERVICES FRI 04-FEB-00 13:22

Cursor: 0.180keV = 1



0.000 VFS = 32 10.240

12 M22963-005; ANTHOPHYLLITE

7708663259

TEM DUST ANALYSIS M22963 006

McGarvey, Heberling, Sullivan & McGarvey

*

Client Sample ID: 6

Sample Area/ Volume:	100 cm2	Date Analyzed:	2/4/00
Filter Type:	MCE 47mm	Analyst:	William Stark
Pore size:	0.45	Scope Number:	3
Effective Filter Area:	1297	Accelerating Voltage:	100 KV
Sample type:	Dust	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 90 %	Grid_box:	5674

Str < 5um:	6	Number of grids:	2	#1: 112	#3: 114	Average Grid Size:	0.012713
Str ≥5um:	7	Number of openings:	10	#2: 112	#4: 113	Total Area Analyzed:	0.127
Total Str:	13						

Volume Filtered 5 ml

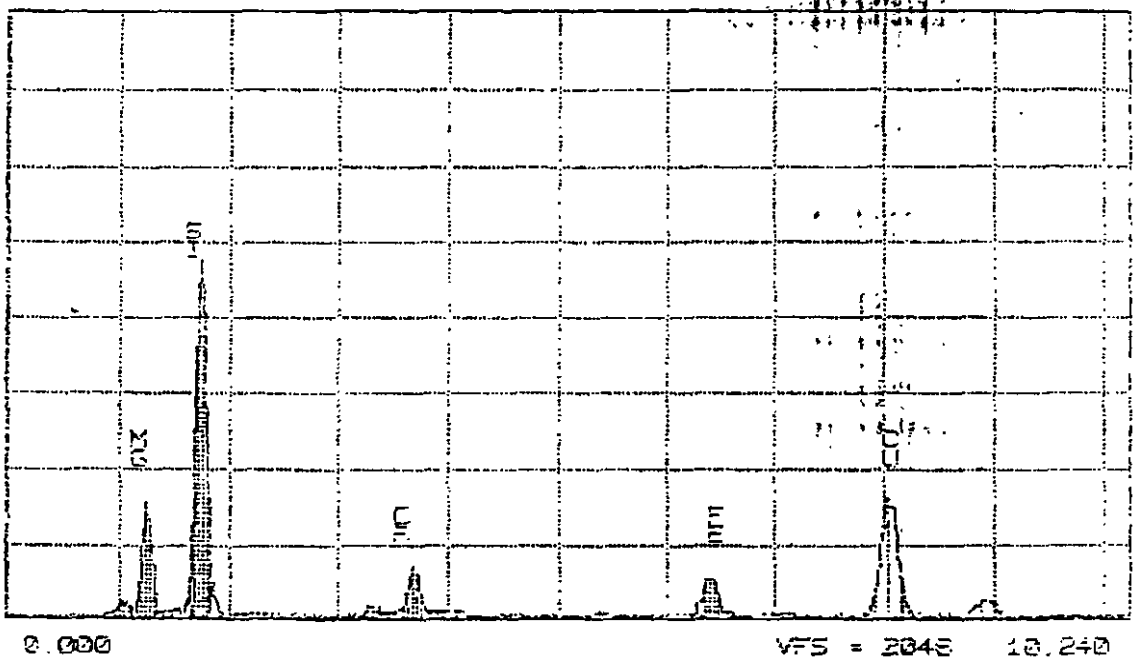
Dilution Factor 33.33333

Str / sqr ft	4.107E+07	Str / cm2	4.421E+04
Str / sqr ft >=5	2.212E+07	Str / cm2 >=5	2.381E+04

Str#:	SquareID:	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
1	D6-I8	AC	M-F	3.50	0.18	X	X	Print Out
2	F4	AC	F	3.20	0.20	X	X	
3	F4	AC	B	9.80	0.50	X	X	
4	C2	AC	B	18.80	1.00	X	X	
5	A4	AC	B	13.80	0.80	X	X	
6	A4	AC	B	5.80	0.40	X	X	Print Out
7	C8	AC	F	4.40	0.22	X	X	
8	D7-H8	AC	M-F	2.80	0.20	X	X	
9	E9	AC	B	7.20	0.38	X	X	
10	E9	AC	M-F	1.80	0.10	X	X	
11	B6	AC	M-B	16.00	0.50	X	X	Print Out
12	C4	AC	M-F	3.60	0.35	X	X	
13	F3	AC	M-F	6.20	0.20	X	X	

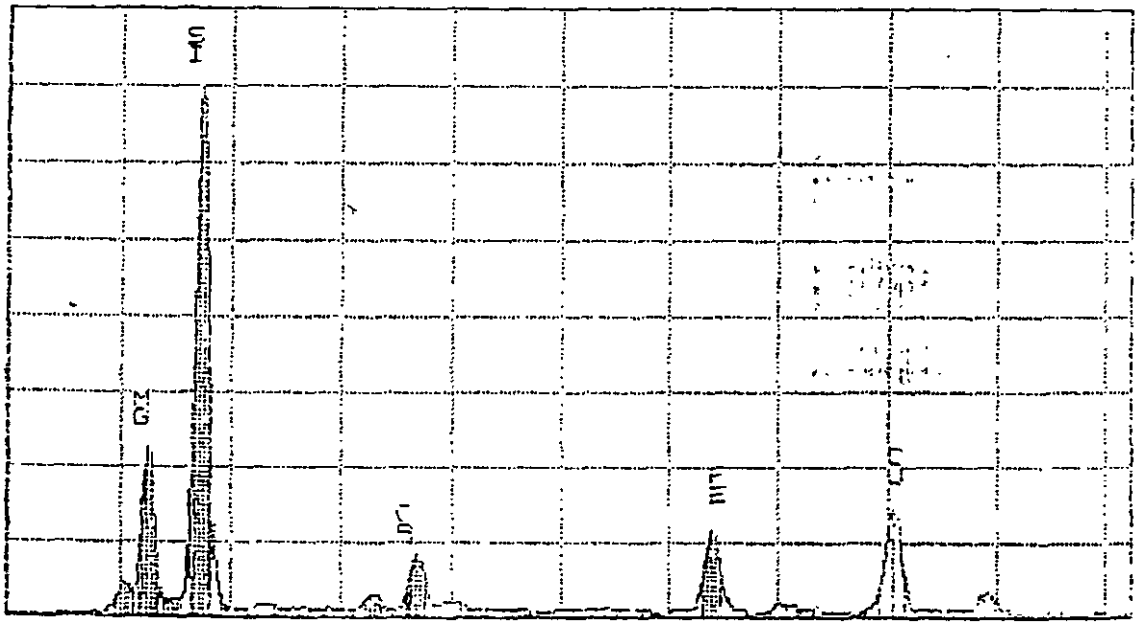
M22963 006 Sample Comments:

7708663259


MATERIALS ANALYTICAL SERVICES
FRI 04-FEB-00 14:34
Cursor: 0.000KeV = 0
ROI (SiKα) 1.650: 1.920=5445
Ca
Ca
0.000
VFS = 2048
10.240
158
M22953-005: ACTINOLITE EDS

MATERIALS ANALYTICAL SERVICES FRI 04-FEB-00 14:42

Cursor: 0.000KeV = 0 ROI (SiKα) 1.660: 1.820=2618



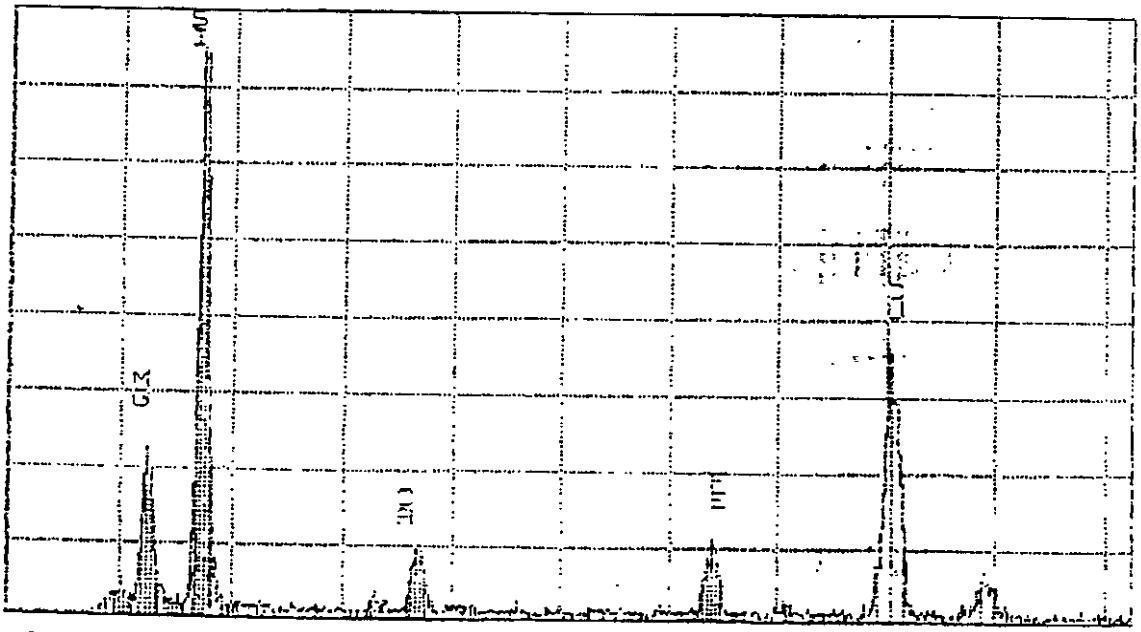
0.000 VFS = 512 10.240

60 M22963-006: ACTINOLITE EDS

7708663259

MATERIALS ANALYTICAL SERVICES FRI 04-FEB-00 15:00

Cursor: 0.000KeV = 0 ROI (SiKa) 1.650: 1.820=1175



26 M22963-006: ACTINOLITE EDS

7708663259

TEM DUST ANALYSIS M22963 007

McGarvey, Heberling, Sullivan & McGarvey

*

Client Sample ID: 7

Sample Area/ Volume:	176 cm2	Date Analyzed:	2/4/00
Fi Type:	MCE 47mm	Analyst:	Al Harmon
ore size:	0.45	Scope Number:	2
Effective Filter Area:	1297	Accelerating Voltage:	100 KV
Sample type:	Dust	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 25 %	Grid_box:	5674

Str < 5um:	8	Number of grids:	2	#1: 114	#3: 114	Average Grid Size:	0.012996
Str ≥5um:	5	Number of openings:	10	#2: 114	#4: 114	Total Area Analyzed:	0.130
Total Str:	13						

Volume Filtered 3 ml

Dilution Factor 33.33333

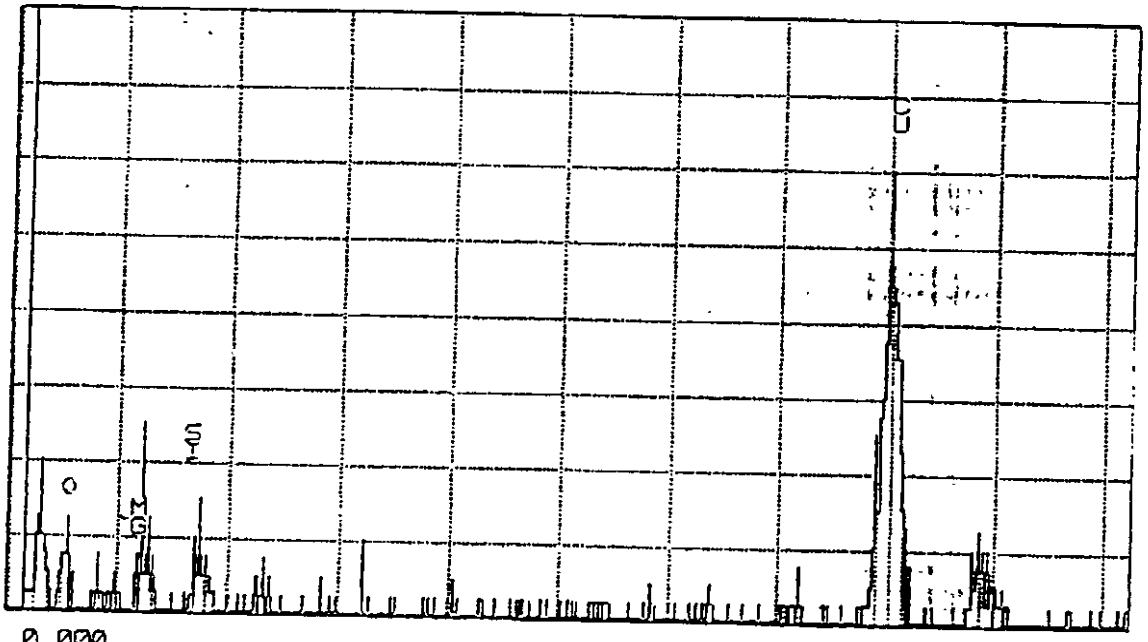
Str / sqr ft	2.283E+07	Str / cm2	2.457E+04
Str / sqr ft >=5	8.780E+06	Str / cm2 >=5	9.451E+03

Str#:	SquareID:	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
1	C9-E9	C	F	6.00	0.04	X	X	Print Out
2	E9	C	M-F	3.00	0.04	X	X	
	H7		NSD					
3	F5	C	M-F	8.00	0.04	X	X	
4	C2	C	F	2.00	0.04	X	X	
5	C2	C	M-F	3.00	0.04	X	X	
6	B5	AN	F	4.00	0.36	X	X	Print Out
7	B5	C	F	2.00	0.04	X	X	
8	D9-G3	C	M-B	4.00	0.20	X	X	
9	G3	C	F	5.00	0.04	X	X	
10	D4	C	F	1.50	0.03	X	X	
11	B6	C	F	4.00	0.04	X	X	Print Out
12	B6	C	F	8.00	0.04	X	X	
	C9		NSD					
13	E8	C	M-F	5.00	0.04	X	X	

M22963 007 Sample Comments:

MATERIALS ANALYTICAL SERVICES
Cursor: 0.140keV = 5

FRI 04-FEB-00 16:30



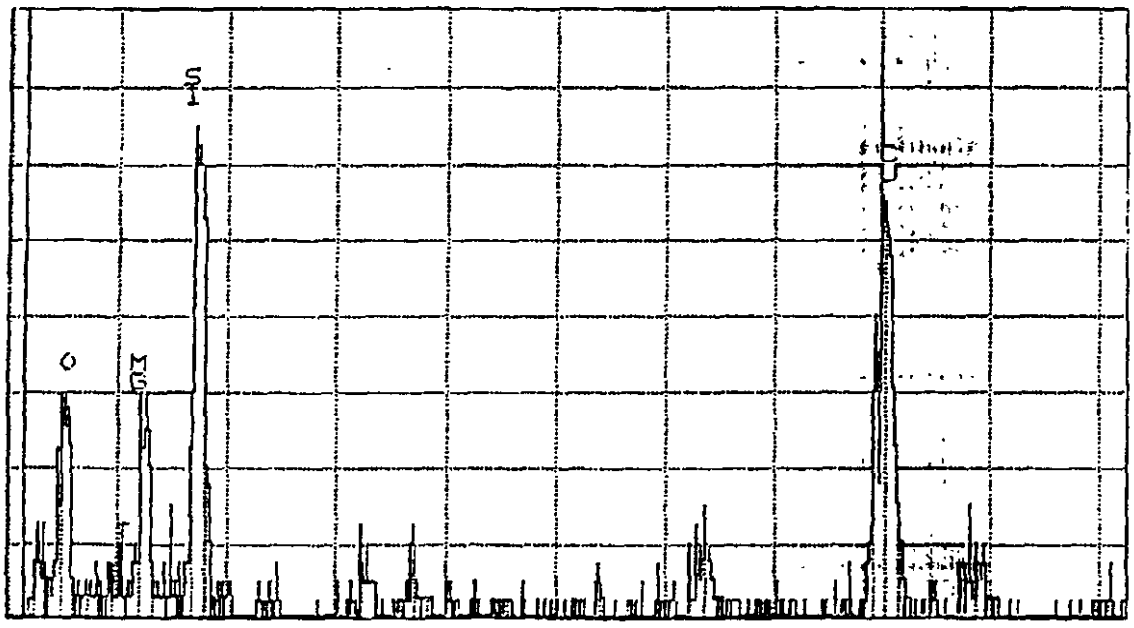
0.000

VFS = 32

10.240

17 M22953-007; CHRYSOTILE

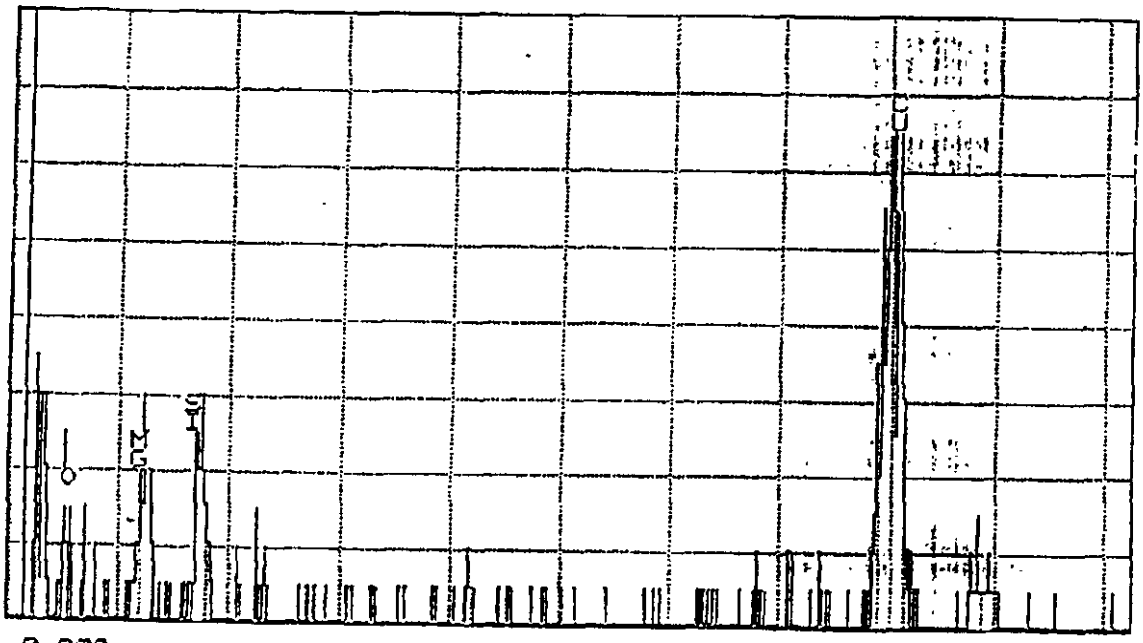
MATERIALS ANALYTICAL SERVICES FRI 04-FEB-00 16:43
Cursor: 0.140keV = 0



0.000 VFS = 32 10.240

7 M22963-007; ANTHOPHYLLITE

MATERIALS ANALYTICAL SERVICES FRI 04-FEB-00 16:51
Cursor: 0.140keV = 2



0.000 VFS = 16 10.240

12 M22963-007; CHRYSOTILE

TEM DUST ANALYSIS M22963 008

McGarvey, Heberling, Sullivan & McGarvey

Client Sample ID: 8

Sample Area/ Volume:	0 cm2	Date Analyzed:	2/5/00
Filter Type:	MCE 47mm	Analyst:	Al Harmon
Pore size:	0.45	Scope Number:	2
Effective Filter Area:	1297	Accelerating Voltage:	100 KV
Sample type:	Dust	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 1 %	Grid_box:	5674

Str < 5um:	0	Number of grids:	2	#1:	114	#3:	114
Str ≥5um:	0	Number of openings:	10	#2:	114	#4:	114
Total Str:	0						

Average Grid Size: 0.012996
Total Area Analyzed: 0.130

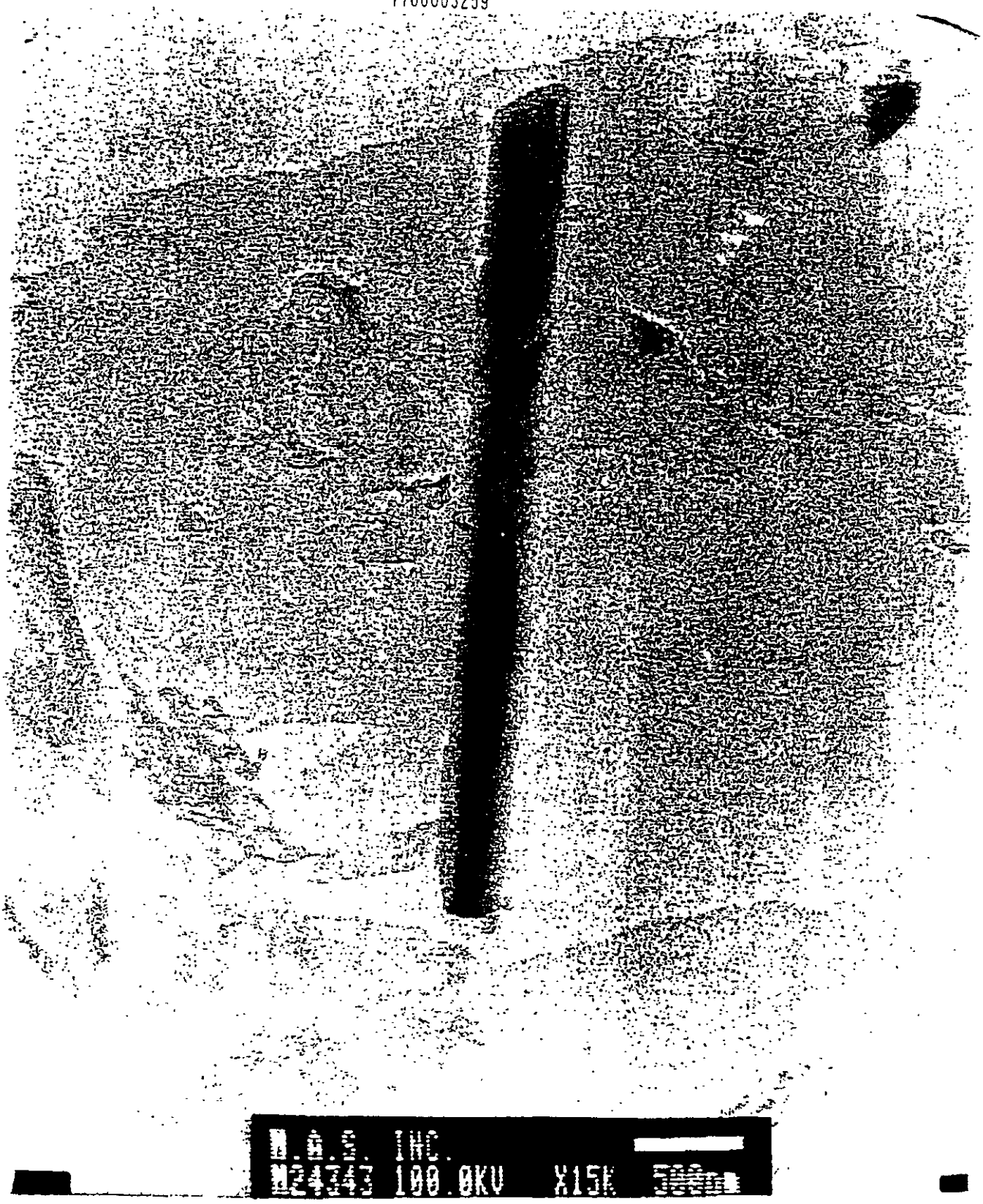
Volume Filtered 30 ml
Dilution Factor 3.333333

Str / sqr ft	0.000E+00	Str / cm2	0.000E+00
Str / sqr ft >=5	0.000E+00	Str / cm2 >=5	0.000E+00

Str	SquareID:	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
	C10-G7		NSD					
	F9		NSD					
	D8		NSD					
	A6		NSD					
	C3		NSD					
	D10-E8		NSD					
	F7		NSD					
	D9		NSD					
	C4		NSD					
	E3		NSD					

M22963 008 Sample Comments:

7708663259



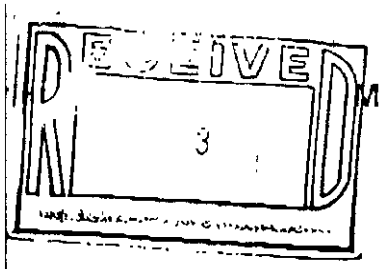

M.A.S. IHC.
100 0KV X10K

E

INSERT
VIDEO

"Moving Vermiculite
attic Insulation Demo"

Exhibit "F"
Richard Hatfield
Affidavit



Materials Analytical Services, Inc.
3945 Lakefield Court
Suwanee, GA 30024
(770) 866-3200

Summary of Microvac Dust Analysis by Transmission Electron Microscopy (TEM)

Date: 3/21/00

Client Name: Richard Hatfield

Client Job Number/Name: Vermiculite Demonstration, Spokane, Washington

MAS Project Number: M23236 (Dust) & M23237 (Air)

AIR SAMPLES

MAS ID	Sample ID & Location	Total Asbestos Str/cc
M23237-001	#1 Background Outside	BTL *
M23237-002	#2 Paul Liss (right)	9.75
M23237-003	#3 Paul Liss (left)	6.96
M23237-004	#4 Area (on pipe)	12.48
M23237-005	#5 Blank	0

* BTL = Below Detection Limit

DUST SAMPLES

MAS ID	Sample ID & Location	Asbestos Concentration str/sq. ft.	Asbestos Concentration str/cm^2
M23236-001	#1 Dust from Attic Under the Vermiculite	46.8 Million	50.3 Thousand

Raleigh Office:
616 Hutton Street • Suite 101
Raleigh, NC 27606
(919) 829-7041 • FAX (919) 829-5518

Atlanta Office:
3945 Lakefield Court
Suwanee, Georgia 30024
(770) 866-3200 • FAX (770) 866-3259

Richard Hatfield
MAS Corporate
3945 Lakefield Court
Suwanee, GA 30024

MAS Project # M23237

Samples were received on 3/16/00

Referencing your Job Name: Vermiculite Demonstration
Job. Number:
PO. Number:

Enclosed are the results for the indirect prep samples listed below:

Sample #	Location	Volume	Sample #	Location	Volume
001	1	32 Liters			
002	2	32 Liters			
003	3	32 Liters			
004	4	32 Liters			
005	5	0 Liters			

Sincerely

Richard Hatfield
Senior Consultant

Enc:

Richard Hatfield
MAS Corporate
3945 Lakefield Court
Suwanee, GA 30024

MAS Project # M23237

Samples were received on 3/16/00

Referencing your Job Name: Vermiculite Demonstration
Job. Number:
PO. Number:

Enclosed are the results for the indirect prep samples listed below:

Sample #	Location	Volume	Sample #	Location	Volume
001	1	32 Liters			
002	2	32 Liters			
003	3	32 Liters			
004	4	32 Liters			
005	5	0 Liters			

Sincerely

Richard Hatfield

Richard Hatfield
Senior Consultant

Enc:

MAS Indirect TEM ANALYSIS M23237-001

CLIENT NAME:	MAS Corporate	CLIENT SAMPLE ID:	1
Sample Area/ Volume:	32 Liters	Date Analyzed:	3/17/00
Filter Type:	MCE 47mm	Analyst:	AJ Harmon
Pore size:	0.45	Scope Number:	2
Effective Filter Area:	1297	Accelerating Voltage:	100 KV
Sample type:	Air	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 5 %	Grid box Number:	5698

Str < 5um:	0	Number of grids:	2	#1: 113	#3: 114
Str ≥ 5um:	0	Number of openings:	10	#2: 112	#4: 114
Total str:	0				
Str / cc > 5:	0.0000 /cc	Average Grid Size:	0.012826		
		Total Area Analyzed:	0.128		

Filter used	Dilution	Dilution Factor	Detect_cc:	1.41
1/ 1.3	30	4.446667	Total cc:	0.00

Str#:	SquareID:	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
	A9-G3		NSD					
	E2		NSD					
	C1		NSD					
	A5		NSD					
	C8		NSD					
	A10-A4		NSD					
	C5		NSD					
	D7		NSD					
	C9		NSD					
	B10		NSD					

M23237 001 Sample Comments:

MAS Indirect TEM ANALYSIS M23237-002

CLIENT NAME:	MAS Corporate	CLIENT SAMPLE ID:	2
Sample Area/ Volume:	32 Liters	Date Analyzed:	3/17/00
Filter Type:	MCE 47mm	Analyst:	Al Hamon
Pore size:	0.45	Scope Number:	2
Effective Filter Area:	1297	Accelerating Voltage:	100 KV
Sample type:	Air	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 18 %	Grid box Number:	5698

Str < 5um:	3	Number of grids:	2	#1: 114	#3: 113
Str ≥ 5um:	4	Number of openings:	10	#2: 114	#4: 114
Total str:	7				
Str / cc > 5:	5.5717 /cc				

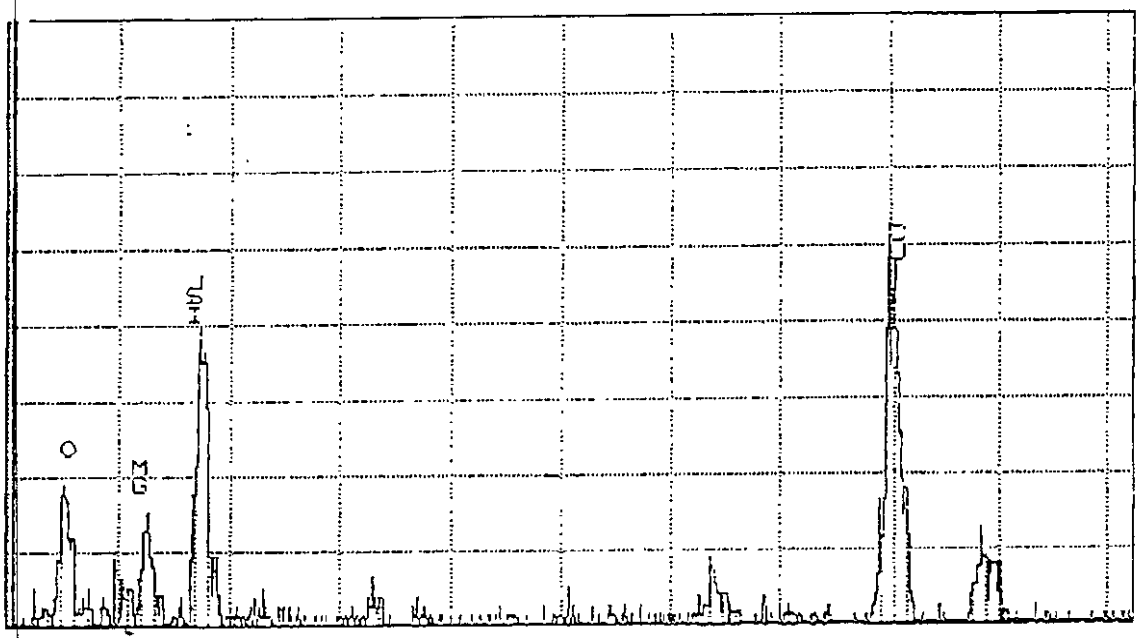
Average Grid Size:	0.012939
Total Area Analyzed:	0.129

Filter used	Dilution	Dilution Factor		
1/ 1.3	30	4.446667	Detect_cc:	1.39
			Total cc:	9.75

Str#:	SquareID:	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
1	C9-H9	AN	F	4.00	0.30	X	M24348	Print Out
	E8		NSD					
2	C7	AN	B	5.00	0.40	M24350	X	X
3	B5	TR	B	3.00	0.40	M24349	X	Print Out
4	D3	AN	M-F	7.00	0.30	X	X	X
	C10-F3		NSD					
	C2		NSD					
5	B6	AN	F	10.00	0.40	X	X	X
6	B6	AN	F	28.00	0.30	X	X	Print Out
7	E8	AN	F	3.00	0.40	X	X	X
	G7		NSD					

M23237 002 Sample Comments:

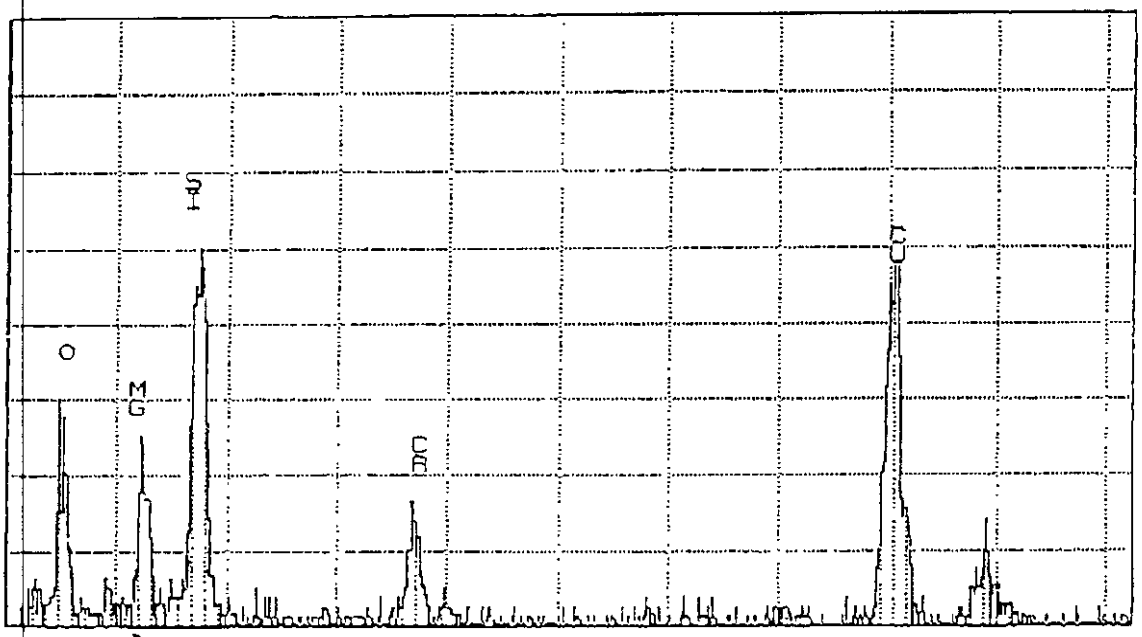
MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 11:38
Cursor: 0.050KeV = 0



0.000 VFS = 64 10.240

159 M23237-002; ANTHOPHYLLITE

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 11:45
Cursor: 0.000keV = 0

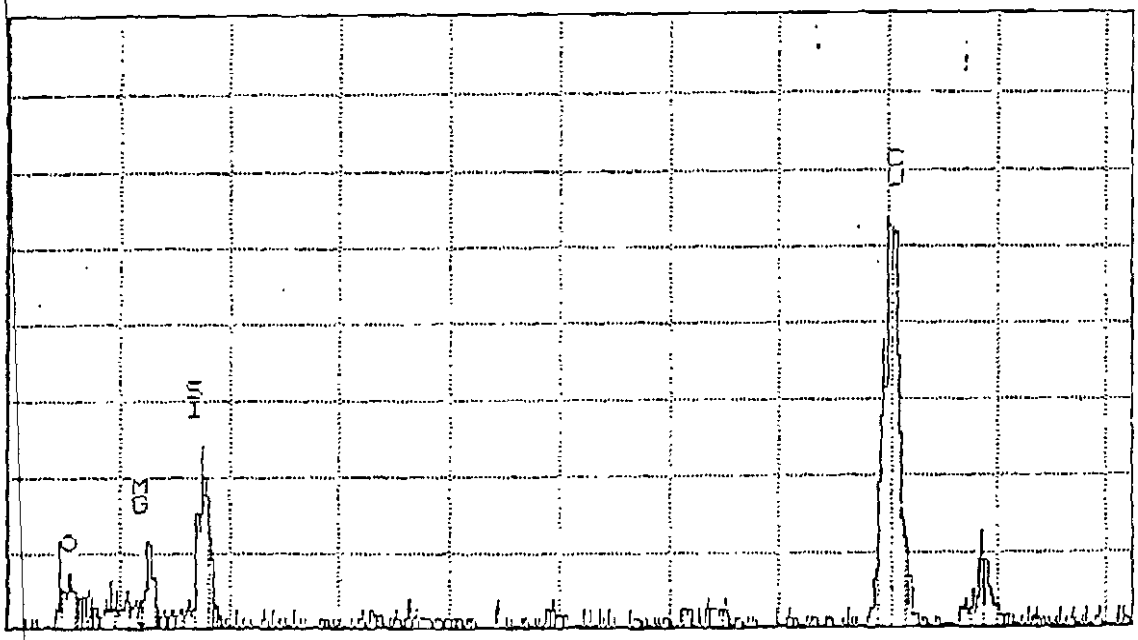


0.000 VFS = 64 10.240

9 M23237-002; TREMOLITE

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 12:08

Cursor: 0.000KeV = 0



0.000 VFS = 64 10.240

5 M23237-002; ANTHOPHYLLITE

MAS Indirect TEM ANALYSIS M23237-003

CLIENT NAME: MAS Corporate

CLIENT SAMPLE ID: 3

Sample Area/ Volume:	32 Liters
Filter Type:	MCE 47mm
Pore size:	0.45
Effective Filter Area:	1297
Sample type:	Air
Analysis type:	Dust
Grid Acceptance	YES 20 %

Date Analyzed:	3/17/00	
Analyst:	William Stark	
Scope Number:	3	
Accelerating Voltage:	100	KV
Indicated Mag:	25	KX
Screen Mag:	20	KX
Grid box Number:	5698	

Str < 5um:	3
Str ≥ 5um:	2
Total str:	5
Str / cc > 5:	2.7858 /cc

Number of grids: 2 #1: 114 #3: 115
Number of openings: 10 #2: 112 #4: 114

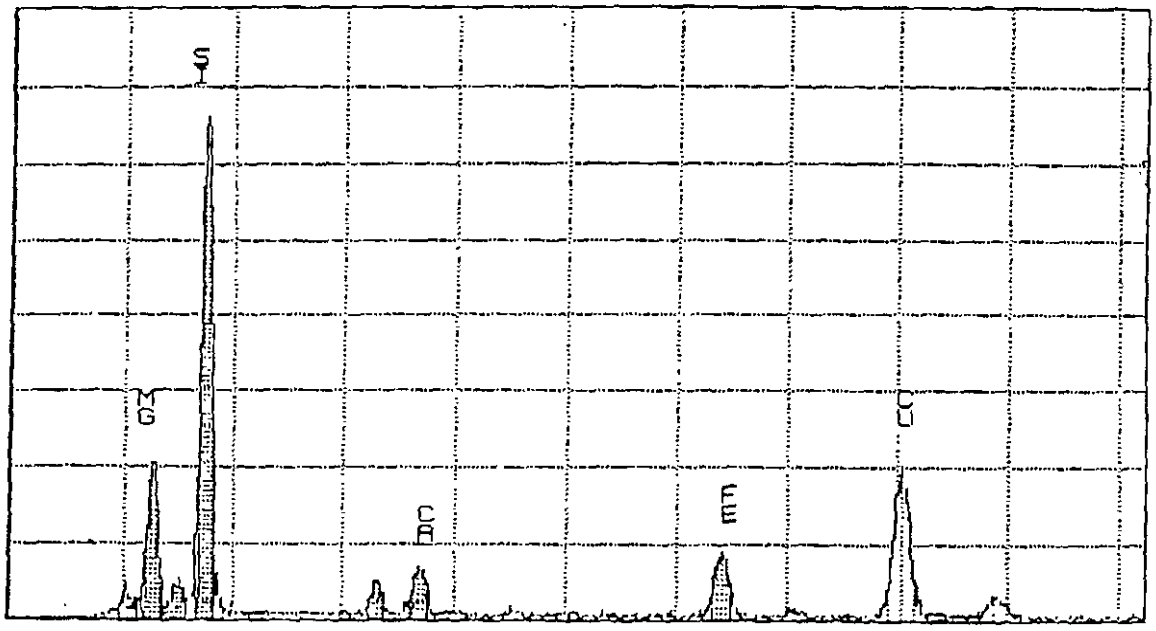
Average Grid Size:	0.012939
Total Area Analyzed:	0.129

Filter used	Dilution	Dilution Factor		
1/ 1.3	30	4.446667	Detect_cc:	1.39
			Total cc:	6.96

Str#:	SquareID:	Type:	Structure.	Length	Width	Morph:	SAED:	EDS:
1	B6-B3	C	M-F	0.80	0.02	X	X	Print Out
2	E4	AC	M-F	8.00	0.80	X	X	Print Out
	H2		NSD					
	I6		NSD					
3	F7	AC	M-F	4.50	0.40	X	X	Print Out
	C6-J9		NSD					
	H8		NSD					
4	G6	AC	M-F	1.60	0.20	X	X	Print Out
5	D2	AC	M-B	19.00	0.40	X	X	Print Out
	E8		NSD					

M23237 003 Sample Comments:

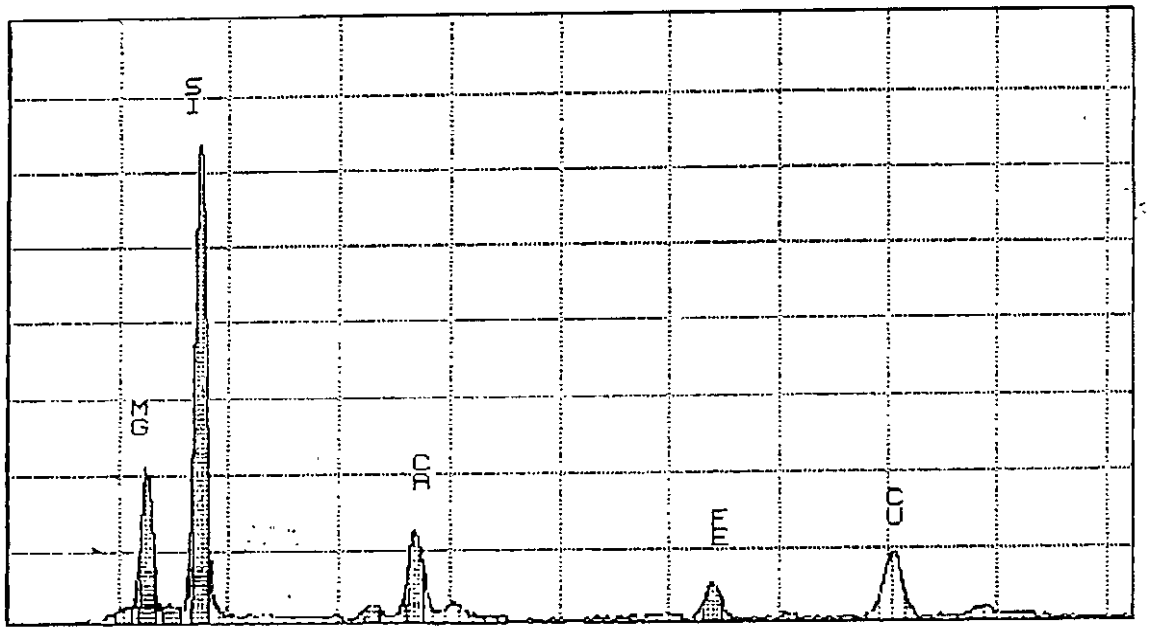
MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 13:34
Cursor: 0.000keV = 0 ROI (SIKα) 1.660: 1.820=0/sec



0.000 VFS = 1024 10.240
53 M23237-003; ACTINOLITE EDS

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 13:41

Cursor: 0.000keV = 0 ROI (SIKα) 1.660: 1.820=0/sec

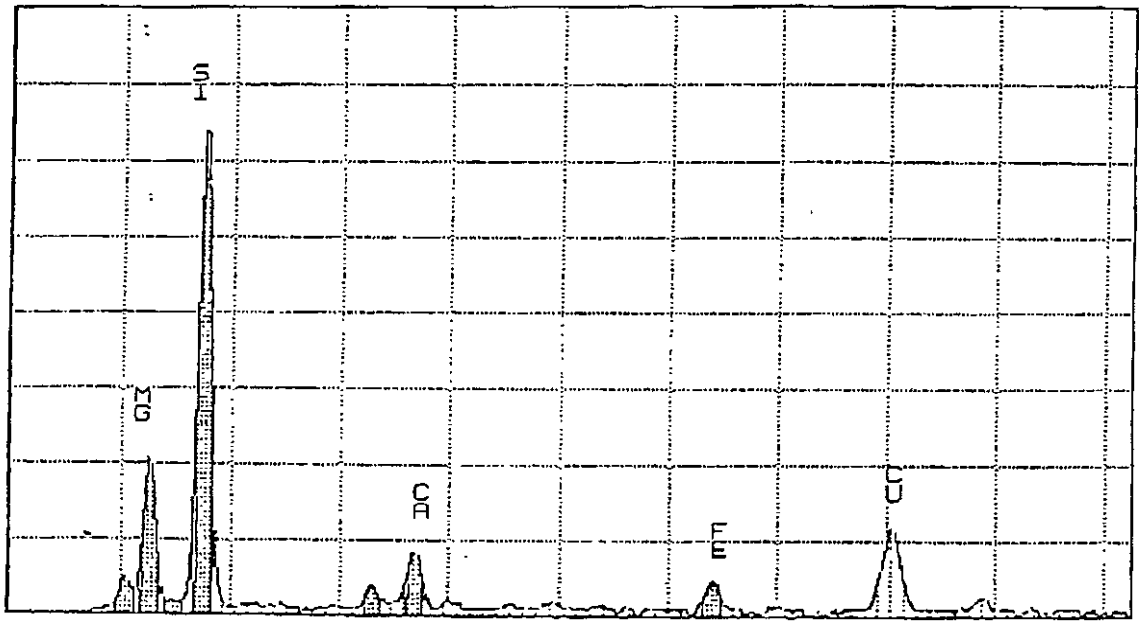


0.000 VFS = 256 10.240

12 M23237-003; ACTINOLITE EDS

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 13:46

Cursor: 0.000keV = 0 ROI (SIKα) 1.660: 1.820=0/sec



0.000 VFS = 256 10.240

21 M23237-003; ACTINOLITE EDS

MAS Indirect TEM ANALYSIS M23237-004

CLIENT NAME:	MAS Corporate	CLIENT SAMPLE ID:	4
Sample Area/ Volume:	32 Liters	Date Analyzed:	3/17/00
Filter Type:	MCE 47mm	Analyst:	Al Harmon
Pore size:	0.45	Scope Number:	2
Effective Filter Area:	1297	Accelerating Voltage:	100 KV
Sample type:	Air	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 18 %	Grid box Number:	5698

Str < 5um:	8	Number of grids:	2	#1: 114	#3: 114
Str ≥ 5um:	1	Number of openings:	10	#2: 114	#4: 114
Total str:	9				
Str / cc > 5:	1.3868 /cc				

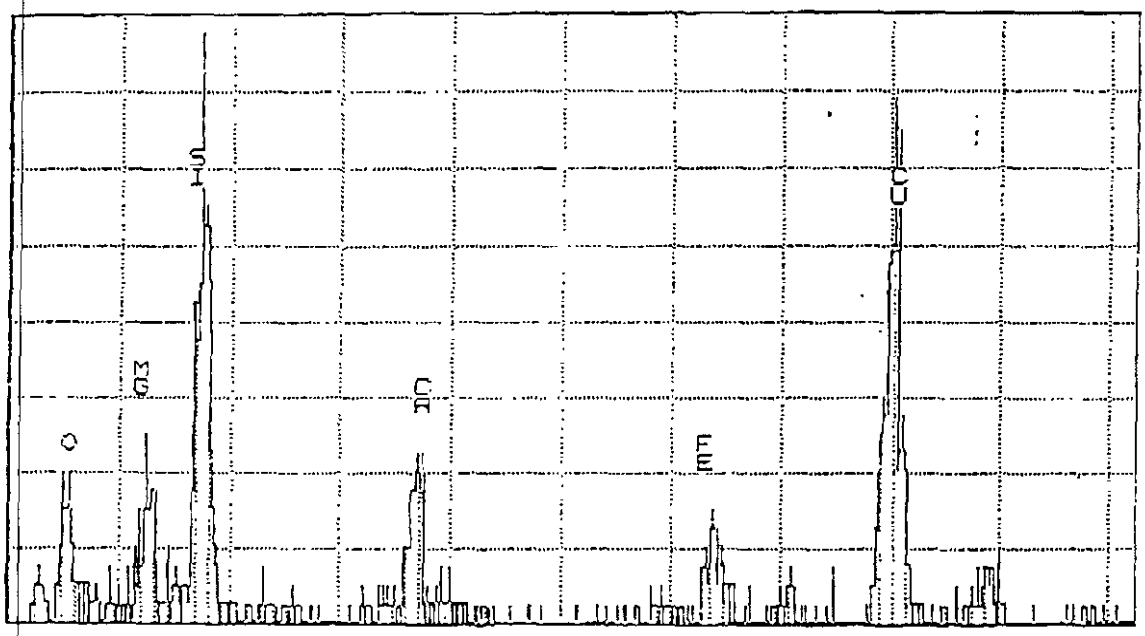
Average Grid Size:	0.012996
Total Area Analyzed:	0.130

Filter used	Dilution	Dilution Factor		
1/ 1.3	30	4.446667	Detect_cc:	1.39
			Total cc:	12.48

Str#:	SquareID.	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
1	B1-I9	AN	M-F	3.00	0.20	X	X	Print Out
	H6		NSD					
2	G4	AN	F	2.00	0.20	X	X	X
3	F2	C	M-F	1.50	0.04	X	X	Print Out
4	F2	AN	F	4.00	0.20	X	X	X
	C4		NSD					
5	B2-F2	C	M-F	1.00	0.03	X	X	
6	F2	AN	F	2.00	0.20	X	X	X
7	F2	AN	F	6.00	0.04	X	X	Print Out
	I5		NSD					
8	G7	TR	F	3.00	0.40	X	X	Print Out
9	E9	AN	F	4.00	0.20	X	X	X
	D6		NSD					

M23237_004 Sample Comments:

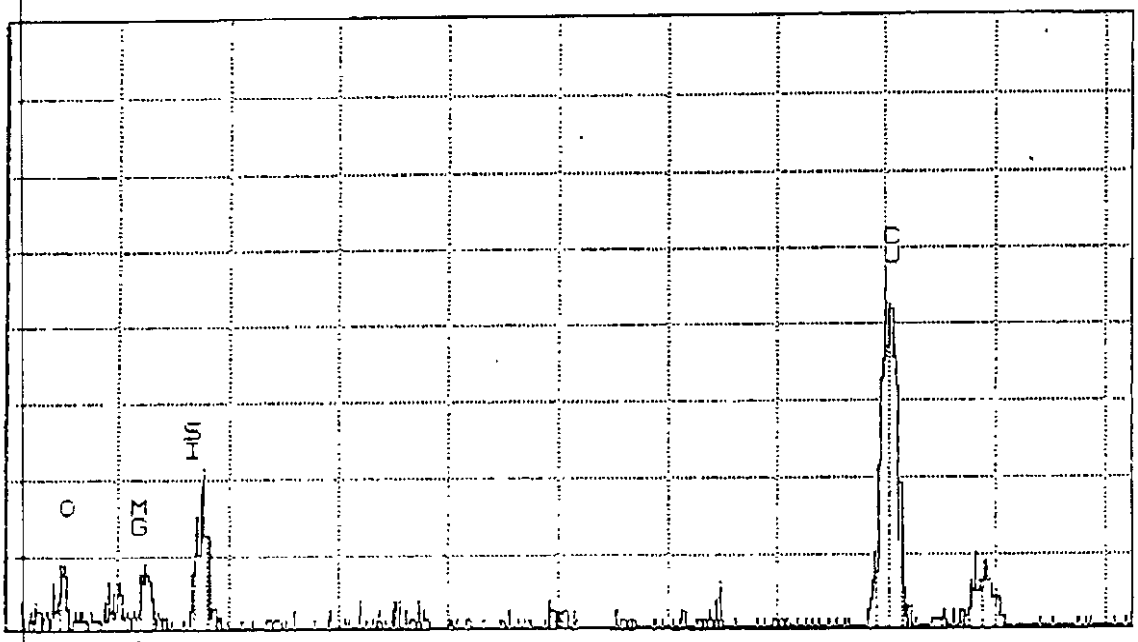
MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 13:45
Cursor: 0.000keV = 0



0.000 VFS = 32 10.240

8 MES237-004; TREMOLITE/ACTINOLITE

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 13:40
Cursor: 0.000keV = 0

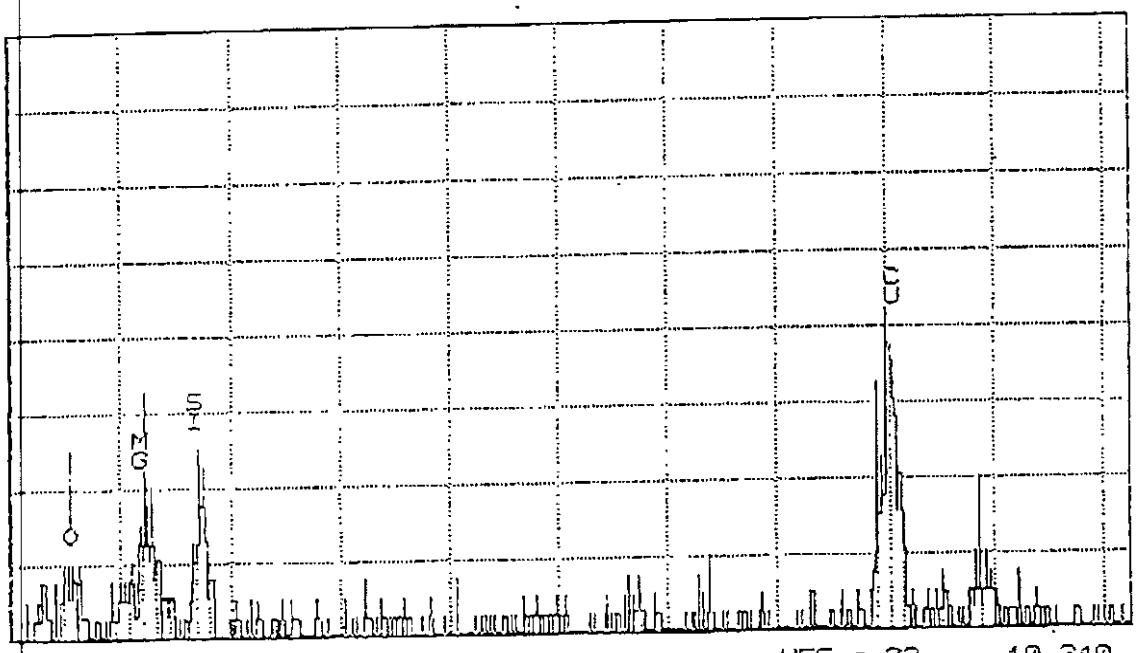


0.000 VFS = 64 10.240

B M22237-004: ANTHOPHYLLITE

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 13:31

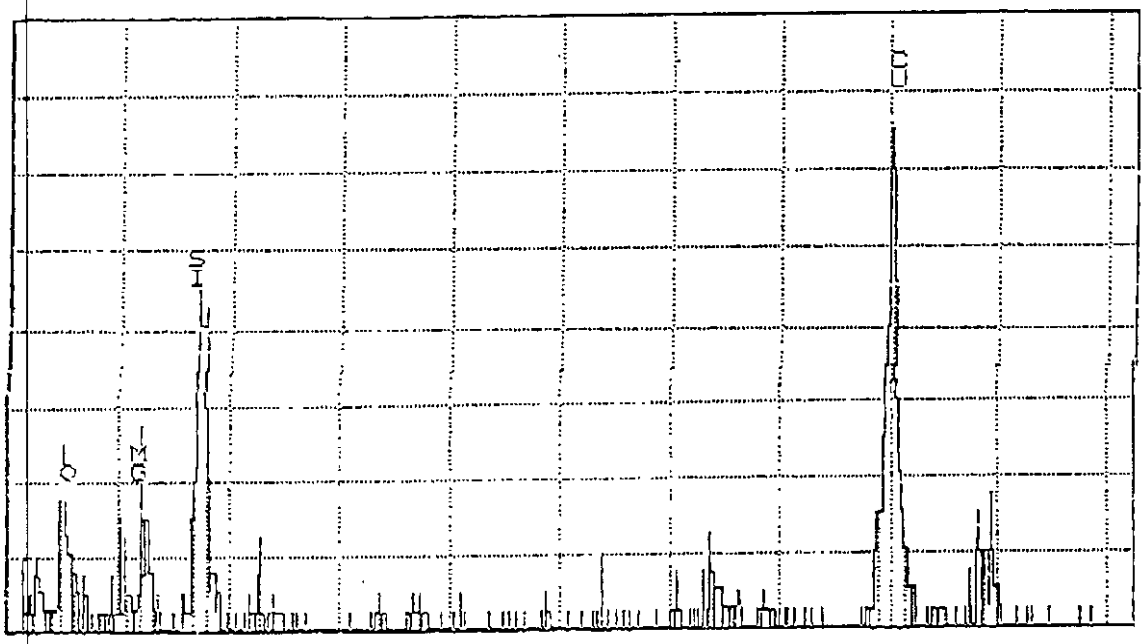
Cursor: 0.000keV = 0



0.000 VFS = 32 10.240

3 M23237-004; CHRYSOTILE

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 13:20
Cursor: 0.000keV = 0



0.000 VFS = 32 10.240

10 M23237-004; ANTHOPHYLLITE

MAS Indirect TEM ANALYSIS M23237-005

CLIENT NAME:	MAS Corporate	CLIENT SAMPLE ID:	5
Sample Area/ Volume:	0 Liters	Date Analyzed:	3/17/00
Filter Type:	30	Analyst:	Al Harmon
Pore size:	0.45	Scope Number:	2
Effective Filter Area:	100	Accelerating Voltage:	100 KV
Sample type:	Air	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 2 %	Grid box Number:	5698

Str < 5um:	0	Number of grids:	2	#1: 114	#3: 114
Str ≥ 5um:	0	Number of openings:	10	#2: 114	#4: 114
Total str:	0				
Str / cc > 5:	#Error /cc	Average Grid Size:	0.012996		
		Total Area Analyzed:	0.130		

Filter used	Dilution	Dilution Factor		
1/ 1.3	30	0	Detect_cc:	#Div/0!
			Total cc:	#Error

Str#:	SquareID:	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
	E6-E8		NSD					
	G10		NSD					
	J6		NSD					
	H4		NSD					
	F3		NSD					
	E7-H8		NSD					
	E7		NSD					
	C5		NSD					
	B7		NSD					
	D9		NSD					

M23237 005 Sample Comments:

MATERIALS ANALYTICAL SERVICES, INC.
CHAIN OF CUSTODY FORM

Air Samples

PAGE __ OF __

B NAME/P.O.: Vermiculite Dimonstion (Spokane WA) REC'D FROM: _____ INITIATED BY: Richard Hatfield

AS PROJ. NO.: _____ VIA: _____ DATE INITIATED: 3/14/00

	INITIATE COC		FIRST TRANSFER					SECOND TRANSFER				
SAMPLE NO.	SAMPLE DESCRIPTION	DATE REC'D	TRANS TO	DATE SENT	MODE TRANS	REC'D BY	DATE REC'D	TRANS TO	DATE SENT	MODE TRANS	REC'D BY	DATE REC'D
1	Background outside	3/14/00	MAS		Hand	3/16/00						
2	Paul Liss (right)	3/14/00	MAS		Hand	3/16/00						
3	Paul Liss (Left)	3/14/00	MAS		Hand	3/16/00						
4	Attic (on pipe)	3/14/00	MAS		Hand	3/16/00						
5	Blank	3/14/00	MAS		Hand	3/16/00						
1	24hr 1:57-2:13											
2	24hr 2:37-2:53											
3	24hr 2:37-2:53											
4	24hr 2:37-2:53											
5												

FORMS #3 COCFORM

Exhibit "G"
Richard Hatfield
Affidavit

Materials Analytical Services, Inc.
3945 Lakefield Court
Suwanee, GA 30024
(770) 866-3200

Summary of Microvac Dust Analysis by Transmission Electron Microscopy (TEM)

Date:	3/21/00
Client Name:	Richard Hatfield
Client Job Number/Name:	Vermiculite Demonstration, Spokane, Washington
MAS Project Number:	M23236 (Dust) & M23237 (Air)

AIR SAMPLES

MAS ID	Sample ID & Location	Total Asbestos Str/cc
M23237-001	#1 Background Outside	BTL *
M23237-002	#2 Paul Liss (right)	9.75
M23237-003	#3 Paul Liss (left)	6.96
M23237-004	#4 Area (on pipe)	12.48
M23237-005	#5 Blank	0

* BTL = Below Detection Limit

DUST SAMPLES

MAS ID	Sample ID & Location	Asbestos Concentration str/sq. ft.	Asbestos Concentration str/cm^2
M23236-001	#1 Dust from Attic Under the Vermiculite	46.8 Million	50.3 Thousand

EXHIBIT
G
Hatfield

Raleigh Office:
Hutton Street • Suite 101
Raleigh, NC 27606
(919) 829-7041 • FAX (919) 829-5518

Atlanta Office:
3945 Lakefield Court
Suwanee, Georgia 30024
(770) 866-3260 • FAX (770) 866-3259

RECEIVED
3

Richard Hatfield
MAS Corporate
3945 Lakefield Court
Suwanee, GA 30024

MAS Project # M23236

Samples were received on 3/16/00
Referencing your Job Name: Vermiculite Demo
Job. Number:
PO. Number:

Enclosed are the results for the dust samples listed below:

#	Location	Volume	#	Location	Volume
001	1	100 cm2			

Sincerely

Richard Hatfield
Senior Consultant

Enc:

[1] The samples were prepared and analyzed using counting rules in general accordance with NIST NVLAP and AHERA regulations as published in the Federal Register, October 30, 1987, EPA 40 CFR Part 763. The analytical method used has been outlined in MAS SOP #NT-007, AHERA ASBESTOS ANALYSIS PROCEDURE USING TEM.

[2] This report relates only to items tested as received, and may not be used to claim endorsement by NVLAP or any other U.S. government agency. This report may not be reproduced except in full with the approval of Materials Analytical Services, Inc. (MAS). MAS assumes that samples were collected by qualified personnel using proper procedures. MAS does not assume any responsibility for analyses reported as structures/cm3 on samples collected by non-laboratory personnel.

NVLAP #1235 00

TEM DUST ANALYSIS M23236 001

MAS Corporate
Vermiculite Demo

Client Sample ID: 1

Sample Area/ Volume:	100 cm2	Date Analyzed:	3/17/00
Filter Type:	MCE 47mm	Analyst:	Al Hamon
Pore size:	0.45	Scope Number:	2
Effective Filter Area:	1297	Accelerating Voltage:	100 KV
Sample type:	Dust	Indicated Mag:	25 KX
Analysis type:	Dust	Screen Mag:	20 KX
Grid Acceptance	YES 15 %	Grid_box:	5698

Str < 5um:	3	Number of grids:	2	#1: 113	#3: 114	Average Grid Size:	0.012882
Str ≥5um:	2	Number of openings:	10	#2: 114	#4: 113	Total Area Analyzed:	0.129
Total Str:	5						

Volume Filtered 1 ml
Dilution Factor 100

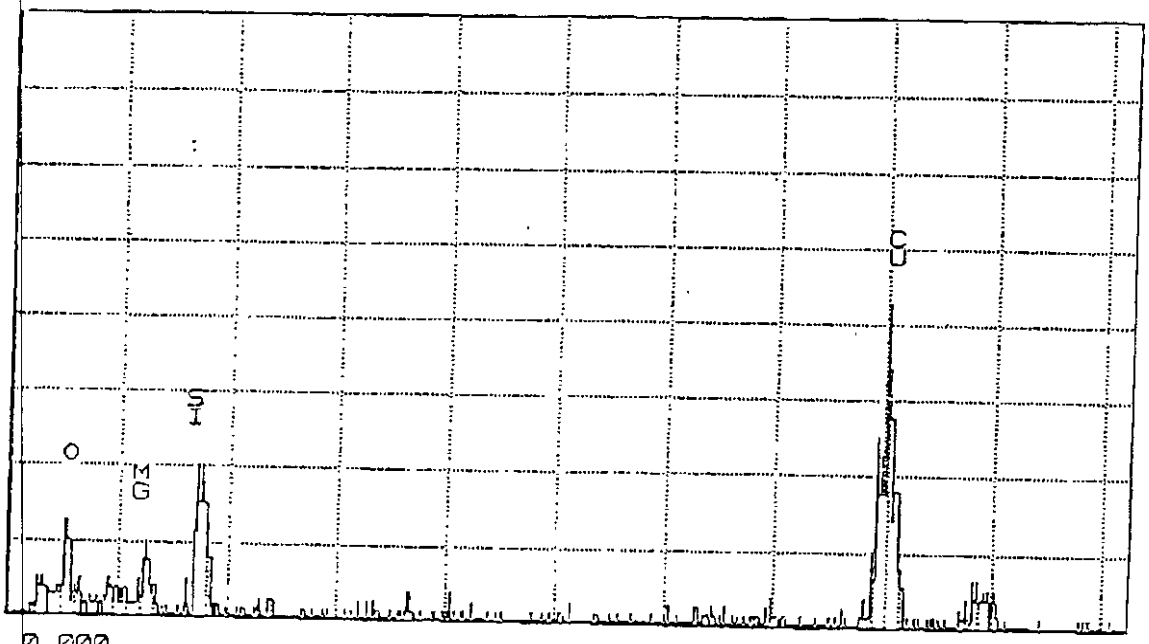
Str / sqr ft	4.677E+07	Str / cm2	5.034E+04
Str / sqr ft >=5	1.871E+07	Str / cm2 >=5	2.014E+04

TEM DATA

Str#:	SquareID:	Type:	Structure:	Length	Width	Morph:	SAED:	EDS:
1	D9-I6	AN	F	8.00	0.40	X	X	Print Out
2	G3	AN	F	2.00	0.08	X	X	X
3	D4	C	F	25.00	0.10	X	X	Print Out
	C6		NSD					
	F7		NSD					
	D10-G4		NSD					
4	E6	AN	F	3.00	0.10	X	X	X
	C8		NSD					
	F8		NSD					
5	D5	AN	M-F	1.00	0.10	X	X	X

M23236_001

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 14:40
Cursor: 0.000keV = 0

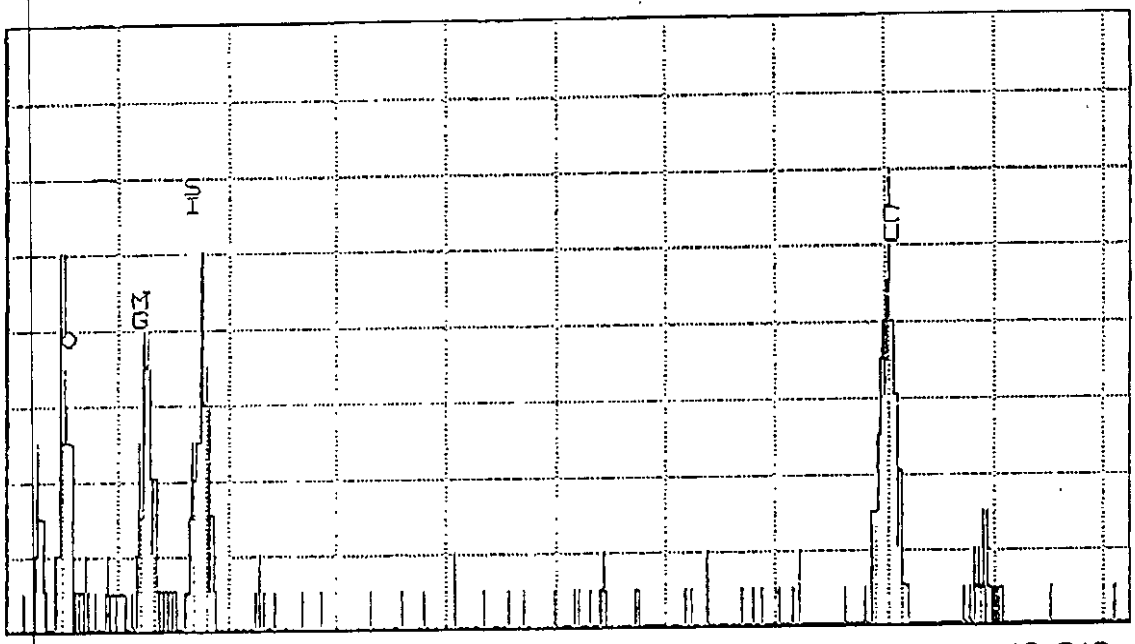


0.000 VFS = 64 10.240

9 M23237-004; ANTHOPHYLLITE

MATERIALS ANALYTICAL SERVICES FRI 17-MAR-00 14:45

Cursor: 0.000keV = 0



0.000 VFS = 16 10.240

6 M23237-004; CHRYSOTILE

MATERIALS ANALYTICAL SERVICES, INC.
CHAIN OF CUSTODY FORM

DUST

PAGE __ OF __

LAB NAME/P.O.: Vermiculite Demonstration (Spokane WA) REC'D FROM: _____ INITIATED BY: Richard Hatfield

MAS PROJ. NO.: _____ VIA: _____ DATE INITIATED: 5/13/00

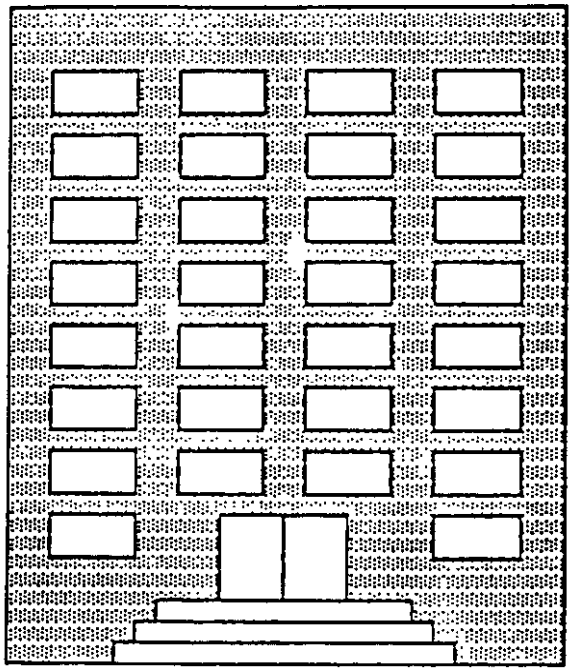
INITIATE COC			FIRST TRANSFER					SECOND TRANSFER				
SAMPLE NO.	SAMPLE DESCRIPTION	DATE REC'D	TRANS TO	DATE SENT	MODE TRANS	REC'D BY	DATE REC'D	TRANS TO	DATE SENT	MODE TRANS	REC'D BY	DATE REC'D
1	Dust from ATTIC under Vermiculite Insulation 10cm x 10 cm											

FOR 6 #1.COCFORM

EXHIBIT 33

EPA STUDY OF ASBESTOS-CONTAINING MATERIALS IN PUBLIC BUILDINGS

A Report To Congress



U.S. Environmental Protection Agency
Washington, D.C.
February, 1988

found in persons living in the households of asbestos workers (Selikoff et al., 1982) or living near asbestos mining areas, asbestos product factories, or shipyards where there was heavy use of asbestos (USEPA, 1980; NRC, 1984). As is typically done for other carcinogens, health effects associated with low level nonoccupational exposure to airborne asbestos fibers in public and commercial buildings have been inferred by extrapolating data from laboratory and occupational studies (USEPA, 1986). However, as with many other environmental pollutants, the validity of extrapolating from high level exposure to low level exposure has never been demonstrated empirically.

Summary

Asbestos is known to be extremely hazardous, based upon studies of both laboratory animals and asbestos workers and their families. Several life-threatening diseases, such as lung cancer and mesothelioma, can be caused by exposure to airborne asbestos. No safe threshold has been established for asbestos. Effects at low levels of nonoccupational exposure have been estimated by extrapolation from higher levels although the validity of this approach has not been empirically demonstrated.

EXHIBIT 34

federal register

Wednesday
August 10, 1994

Part II

Department of Labor

Occupational Safety and Health Administration

29 CFR Parts 1910, et al.
Occupational Exposure to Asbestos; Final Rule

8–10–94
Vol. 59 No. 153

federal register

Wednesday
August 10, 1994

United States
Government
Printing Office
SUPERINTENDENT
OF DOCUMENTS
Washington, DC 20402

OFFICIAL BUSINESS
Penalty for private use, $300

SECOND CLASS NEWSPAPER
Postage and Fees Paid
U.S. Government Printing Office
(ISSN 0097-6326)

Modification

Alternatives or modifications to listed control methods are allowed when the employer demonstrates that such a "modification" still provides equivalent worker protection. OSHA does not intend that changes in a control method which decrease the safety margin of a material or omitting a procedure be permitted by calling it a "modification." A "modification" means a changed or altered procedure, material which replaces a procedure, material or component of a required system. For example, a new test proven successful in detecting leaks might be substituted for required "smoke tests." Omission of a procedure or component, or a reduction in the stringency or strength of a material or component is not considered a "modification" under this section.

Presumed Asbestos-Containing Material (PACM)

In all three standards, "presumed asbestos containing material," "PACM" means thermal system insulation and sprayed on and/or troweled or otherwise applied surfacing material in buildings constructed no later than 1980. OSHA has found that these materials are "high risk" if asbestos-containing. OSHA bases this on the record, including the HEI Report which states that "thermal system insulation and surface treatments (fireproofing, acoustical and decorative finishes) stand out in importance for their potential for fiber release and subsequent exposure to [building] occupants" (Ex. 1-344, p. 4-5). Although these materials may have been installed in small quantities after 1980, OSHA finds that their installation is unlikely after that date.

Project Designer

OSHA has adopted a definition like that of EPA for a "Project Designer"—a person who has successfully completed the training requirements for an abatement project designer established by 40 USC 763.90(g).

Removal

"Removal" means all operations where ACM and/or PACM is removed from a building component, regardless of the reason for the removal. It includes those maintenance, repair, renovation and demolition activities where ACM and/or PACM removal is incidental to the primary reason for the project, as well as where removal of ACM and/or PACM is the primary reason for the project. Removal should be distinguished from "disturbance" which includes "cutting away" a small amount of ACM or PACM.

Regulated Area

"Regulated area" is included in all three standards. All three, like the 1986 standards, require the establishment of such an area where the employer believes that the PEL will be exceeded. Now, the construction and shipyard employment standards add that such area must be established also where Class I, II and III activities will take place, regardless of exposure levels. Also, the specific actions required of the employer to demarcate a regulated area are deleted from the definition, and are placed in the appropriate prescriptive paragraph, in this case paragraph (e)(6).

(3) Permissible Exposure Limits

Paragraph (c) General Industry, Construction and Shipyard Standards.

In all three standards, the eight hour time-weighted average permissible exposure limit is changed from an eight hour time weighted average (TWA) of 0.2 f/cc to a TWA of 0.1 f/cc in the revised final rules. As noted in the 1990 proposal and in the preamble discussion above, OSHA's decision to reduce the PEL across the board responds to the Court's directive to consider whether to establish operation-specific exposure limits, since the Court noted that on the record of the 1986 standards, it appeared feasible to reduce the PEL to 0.1 f/cc limit in many industry sectors. OSHA has rejected "operation-specific" PELs for the wide variety of operations that expose employees to asbestos. OSHA proposed and these final standards adopt required operation-specific work practices, in addition to an across-the-board PEL reduction to 0.1 f/cc. OSHA expects that the risk reduction accomplished by this two-pronged approach will be at least as great as would operation-specific PELs. First, the required controls are found to be capable of achieving maximum exposure reduction on an operation-by-operation basis. Second, since OSHA has found that specific work practices are feasible, the Agency expects a higher compliance rate and thus, greater risk reduction than if practices were not specified. Third, in operations where particular controls are specified, the PEL is a backstop; alerting employers where additional controls are needed or closer surveillance is required; in all operations the PEL is a measurable and comparable value, which cannot be exceeded without further action by the employer to reduce exposures.

At the time of the proposal in 1990, the question of whether the proposed PEL reduction would reduce a still significant risk had already been given a tentative answer by the Court. The D.C. Circuit Court of Appeals in remanding the issue of lowering the PEL to the Agency, noted that based on the 1984 risk assessment, the excess risk stemming from average exposures of 0.1 f/cc "could well be found significant." BCTD v. Brock, 838 F.2nd at 1266." (55 FR at 29714).

In the proposal, OSHA stated that it believes "that compliance with the proposed amendments to reduce the PEL to 0.1 f/cc as a time-weighted average measured over 8 hours would further reduce a significant health risk which exists after imposing a 0.2 f/cc PEL." (55 FR 29714, July 20, 1990). OSHA's 1984 risk assessment showed that lowering the TWA PEL from 2 f/cc to 0.2 f/cc reduced the asbestos cancer mortality risk from lifetime exposure from 64 to 6.7 deaths per 1,000 workers. OSHA estimated that the incidence of asbestosis would be 5 cases per 1,000 workers exposed for a working lifetime under the TWA PEL of 0.2 f/cc. Counterpart risk figures for 20 years of exposure are excess cancer risks of 4.5 per 1,000 workers and an estimated asbestosis incidence of 2 cases per 1,000 workers.

OSHA's risk assessment also showed that reducing exposure to 0.1 f/cc would further reduce, but not eliminate, significant risk. The excess cancer risk at that level would be reduced to a lifetime risk of 3.4 per 1,000 workers and a 20 year exposure risk of 2.3 per 1,000 workers. Consequently significant risk would be reduced substantially. However, OSHA concluded therefore that continued exposure to asbestos at the TWA permitted level and action level would still present residual risks to employees which are significant.

The Court did not ask and OSHA did not undertake to review its earlier risk assessment in the proposal. At the hearing in January, 1991, Mr. Martonik, spokesperson for OSHA was asked by Mr. Hardy, representing the Safe Building Alliance (SBA), if OSHA was planning to update the earlier risk assessment as part of this proceeding. Mr. Hardy stated that "a number of parties have suggested to OSHA that its risk assessment from 1984, as relied on in the 1986 final rule, is outdated" (Tr. 30). Mr. Martonik responded that "we will have to consider all information we receive and determine relevance in this rulemaking after the record is closed." (Ibid).

Other parties questioned OSHA's continuing reliance on the 1984 risk assessment. The Asbestos Information Association (AIANA) testified that "OSHA's 1984 risk assessment fails to take into account the scientific community's consensus that chrysotile

Friday
October 30, 1987

Federal Register

Part III

Environmental Protection Agency

40 CFR Part 763

Asbestos-Containing Materials in Schools; Final Rule and Notice

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 763

[OPTS-62048E; FRL-3289-8]

Asbestos-Containing Materials in Schools

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is issuing a final rule under section 203 of Title II of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2643, to require all local education agencies (LEAs) to identify asbestos-containing materials (ACM) in their school buildings and take appropriate actions to control release of asbestos fibers. The LEAs are required to describe their activities in management plans, which must be made available to all concerned persons and submitted to State Governors. This final rule requires LEAs to use specially-trained persons to conduct inspections for asbestos, develop the management plans, and design or conduct major actions to control asbestos. Exclusions are provided for LEAs which have previously conducted inspections and for LEAs subject to any state requirement at least as stringent as the comparable requirement in this final rule.

DATES: In accordance with 40 CFR 23.5, this rule shall be promulgated for purposes of judicial review at 1 p.m. Eastern Standard Time on November 13, 1987. This rule shall be effective on December 14, 1987. The incorporation by reference in the rule is approved by the Director of the Federal Register as of December 14, 1987.

FOR FURTHER INFORMATION CONTACT: Edward A. Klein, Director, TSCA Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-543, 401 M St., SW., Washington, DC 20460, Telephone: (202-554-1404).

SUPPLEMENTARY INFORMATION:

I. Background

A. Description of the Enabling Legislation

On October 22, 1986, President Reagan signed into law the Asbestos Hazard Emergency Response Act (AHERA) which enacted, among other provisions, Title II of the Toxic Substances Control Act (TSCA) 15 U.S.C. sections 2641 through 2654. Section 203 of Title II, 15 U.S.C. 2643, requires EPA to propose rules by April 20, 1987 (180 days after enactment), and to promulgate final rules by October 17, 1987 (360 days after enactment), regarding: (1) The inspection of all public and private school buildings for ACM; (2) the identification of circumstances requiring response actions; (3) description of the appropriate response actions, (4) the implementation of response actions; (5) the establishment of a reinspection and periodic surveillance program for ACM; (6) the establishment of an operations and maintenance program for friable ACM; (7) the preparation and implementation of asbestos management plans by LEAs and the submission of the management plans to State Governors, who may review the plans and approve or disapprove them; and (8) the transportation and disposal of waste ACM from schools. This final rule implements the Title II requirements to issue the section 203 rules (except for transportation and disposal), as discussed further below).

Section 206 of TSCA Title II, 15 U.S.C. 2646, also requires EPA to issue by April 20, 1987, a final model accreditation plan for persons who inspect for asbestos, develop management plans, and design or conduct response actions. States are required to adopt an accreditation program at least as stringent as the EPA model within 180 days after the beginning of their next legislative session. Accreditation of laboratories which analyze asbestos bulk samples and asbestos air samples is also required by TSCA Title II. The National Bureau of Standards (NBS), U.S. Department of Commerce, is required to establish the bulk sampling accreditation program by October 17, 1987, and the air sampling accreditation program by October 12, 1988.

States were required to notify LEAs by October 17, 1987, regarding where to submit management plans. LEAs must submit those plans to their State no later than October 12, 1988. The plans must include the results of school building inspections and a description of all response actions planned, completed, or in progress. After receiving a management plan, States are allowed 90 days to disapprove the plan. If the plan is disapproved, the State must provide a written explanation of the disapproval and the LEA must revise the plan within 30 days to conform with the State's suggested changes. The 30-day period can be extended to 90 days by the State. LEAs are required to begin implementation of their management plans by July 9, 1989, and to complete implementation in a timely fashion.

Transport and disposal rules under TSCA section 203(h) have not yet been proposed. In accordance with TSCA section 204(f), therefore, LEAs shall provide for transportation and disposal of asbestos in accordance with the most recent version of EPA's "Asbestos Waste Management Guidance." Applicable provisions of that document are included as Appendix D of this rule. Regulations governing transport of asbestos-containing waste, including school waste already regulated by the National Emission Standard for Hazardous Air Pollutants (NESHAP) (40 CFR Part 61, Subpart M) under the Clean Air Act (42 U.S.C. section 7401, et seq.), were promulgated by the Department of Transportation (DOT) (49 CFR Part, 173 Subpart J). The NESHAP and DOT rules must be followed, according to the "Asbestos Waste Management Guidance." These rules will be sufficient to ensure the proper loading and unloading of vehicles and to ensure the physical integrity of containers.

Section 203(1) requires Department of Defense schools to carry out asbestos identification, inspection and management activities in a manner comparable to the manner in which an LEA is required to carry out such activities. EPA interprets the language of this section which states that such activities shall be carried out "to the extent feasible and consistent with the national security" as recognition that existing agreements with foreign governments may make it difficult to carry out certain provisions of this regulation.

Since this rule has been signed by the EPA Administrator by October 17, 1987, the rule has been promulgated within the statutory time frame required by section 203 of TSCA Title II. In accordance with 40 CFR 23.5, however, solely for purposes of judicial review deadlines under section 19 of TSCA Title I, the rule is considered to be promulgated at 1 p.m. eastern time, 14 days after publication in the Federal Register. Thus, the period in which petitions for review of this rule may be filed under section 19 commences 14 days after publication.

B. Previous EPA Asbestos Activities

EPA has undertaken a variety of technical assistance and regulatory activities designed to control ACMs in buildings and minimize inhalation of asbestos fibers.

1. *Technical Assistance Program.* Since 1979, EPA staff have assisted schools and other building owners in identifying and controlling ACM in their buildings. Through a cooperative agreement with the American Association of Retired Persons (AARP), EPA has hired architects, engineers, and

(b) The inspector shall classify and give reasons in the written assessment for classifying the ACBM and suspected ACBM assumed to be ACM in the school building into one of the following categories:

(1) Damaged or significantly damaged thermal system insulation ACM.

(2) Damaged friable surfacing ACM.

(3) Significantly damaged friable surfacing ACM.

(4) Damaged or significantly damaged friable miscellaneous ACM.

(5) ACBM with potential for damage.

(6) ACBM with potential for significant damage.

(7) Any remaining friable ACBM or friable suspected ACBM.

(c) Assessment may include the following considerations:

(1) Location and the amount of the material, both in total quantity and as a percentage of the functional space.

(2) Condition of the material, specifying:

(i) Type of damage or significant damage (e.g., flaking, blistering, water damage, or other signs of physical damage).

(ii) Severity of damage (e.g., major flaking, severely torn jackets, as opposed to occasional flaking, minor tears to jackets).

(iii) Extent or spread of damage over large areas or large percentages of the homogeneous area.

(3) Whether the material is accessible.

(4) The material's potential for disturbance.

(5) Known or suspected causes of damage or significant damage (e.g., air erosion, vandalism, vibration, water).

(6) Preventive measures which might eliminate the reasonable likelihood of undamaged ACM from becoming significantly damaged.

(d) The local education agency shall select a person accredited to develop management plans to review the results of each inspection, reinspection, and assessment for the school building and to conduct any other necessary activities in order to recommend in writing to the local education agency appropriate response actions. The accredited person shall sign and date the recommendation, provide his or her State of accreditation, and, if applicable, provide his or her accreditation number, and submit a copy of the recommendation to the person designated under § 763.84 for inclusion in the management plan.

§ 763.90 Response actions.

(a) The local education agency shall select and implement in a timely manner the appropriate response actions in this section consistent with the assessment conducted in § 763.88. The response actions selected shall be sufficient to protect human health and the environment. The local education agency may then select, from the response actions which protect human health and the environment, that action which is the least burdensome method. Nothing in this section shall be construed to prohibit removal of ACBM from a school building at any time, should removal be the preferred response action of the local education agency.

(b) If damaged or significantly damaged thermal system insulation ACM is present in a building, the local education agency shall:

(1) At least repair the damaged area.

(2) Remove the damaged material if it is not feasible, due to technological factors, to repair the damage.

(3) Maintain all thermal-system insulation ACM and its covering in an intact state and undamaged condition.

(c)(1) If damaged friable surfacing ACM or damaged friable miscellaneous ACM is present in a building, the local education agency shall select from among the following response actions: encapsulation, enclosure, removal, or repair of the damaged material.

(2) In selecting the response action from among those which meet the definitional standards in § 763.83, the local education agency shall determine which of these response actions protects human health and the environment. For purposes of determining which of these response actions are the least burdensome, the local education agency may then consider local circumstances, including occupancy and use patterns within the school building, and its economic concerns, including short- and long-term costs.

(d) If significantly damaged friable surfacing ACM or significantly damaged friable miscellaneous ACM is present in a building the local education agency shall:

(1) Immediately isolate the functional space and restrict access, unless isolation is not necessary to protect human health and the environment.

(2) Remove the material in the functional space or, depending upon whether enclosure or encapsulation would be sufficient to protect human health and the environment, enclose or encapsulate.

(e) If any friable surfacing ACM, thermal system insulation ACM, or friable miscellaneous ACM that has potential for damage is present in a building, the local education agency shall at least implement an operations and maintenance (O&M) program, as described under § 763.91.

(f) If any friable surfacing ACM, thermal system insulation ACM, or friable miscellaneous ACM that has potential for significant damage is present in a building, the local education agency shall:

(1) Implement an O&M program, as described under § 763.91.

(2) Institute preventive measures appropriate to eliminate the reasonable likelihood that the ACM or its covering will become significantly damaged, deteriorated, or delaminated.

(3) Remove the material as soon as possible if appropriate preventive measures cannot be effectively implemented, or unless other response actions are determined to protect human health and the environment. Immediately isolate the area and restrict access if necessary to avoid an imminent and substantial endangerment to human health or the environment.

(g) Response actions including removal, encapsulation, enclosure, or repair, other than small-scale, short-duration repairs, shall be designed and conducted by persons accredited to design and conduct response actions.

(h) The requirements of this Subpart E in no way supersede the worker protection and work practice requirements under 29 CFR 1926.58 (Occupational Safety and Health Administration (OSHA) asbestos worker protection standards for construction), 40 CFR Part 763, Subpart G (EPA asbestos worker protection standards for public employees), and 40 CFR Part 61, Subpart M (National Emission Standards for Hazardous Air Pollutants—Asbestos).

(i) Completion of response actions. (1) At the conclusion of any action to remove, encapsulate, or enclose ACBM or material assumed to be ACBM, a person designated by the local education agency shall visually inspect each functional space where such action was conducted to determine whether the action has been properly completed.

(2)(i) A person designated by the local education agency shall collect air samples using aggressive sampling as described in Appendix A to this Subpart E to monitor air for clearance after each removal, encapsulation, and enclosure project involving ACBM, except for projects that are of small-scale, short-duration.

(ii) Local education agencies shall have air samples collected under this section analyzed for asbestos using laboratories accredited by the National Bureau of Standards to conduct such analysis using transmission electron microscopy (TEM) or, under circumstances permitted in this section,

laboratories enrolled in the American Industrial Hygiene Association Proficiency Analytical Testing Program for phase contrast microscopy (PCM).

(iii) Until the National Bureau of Standards TEM laboratory accreditation program is operational, local educational agencies shall use laboratories that use the protocol described in Appendix A to Subpart E of this part.

(3) Except as provided in paragraphs (i) (4), (5), (6), or (7) of this section, an action to remove, encapsulate, or enclose ACBM shall be considered complete when the average concentration of asbestos of five air samples collected within the affected functional space and analyzed by the TEM method in Appendix A of this Subpart E, is not statistically significantly different, as determined by the Z-test calculation found in Appendix A of this Subpart E, from the average asbestos concentration of five air samples collected at the same time outside the affected functional space and analyzed in the same manner, and the average asbestos concentration of the three field blanks described in Appendix A of this Subpart E is below the filter background level, as defined in Appendix A of this Subpart E, of 70 structures per square millimeter (70 s/mm ^{2}).

(4) An action may also be considered complete if the volume of air drawn for each of the five samples collected within the affected functional space is equal to or greater than 1,199 L of air for a 25 mm filter or equal to or greater than 2,799 L of air for a 37 mm filter, and the average concentration of asbestos as analyzed by the TEM method in Appendix A of this Subpart E, for the five air samples does not exceed the filter background level, as defined in Appendix A, of 70 structures per square millimeter (70 s/mm ^{2}). If the average concentration of asbestos of the five air samples within the affected functional space exceeds 70 s/mm ^{2}, or if the volume of air in each of the samples is less than 1,199 L of air for a 25 mm filter or less than 2,799 L of air for a 37 mm filter, the action shall be considered complete only when the requirements of paragraph (i) (3), (5), (6), or (7) of this section are met.

(5) At any time, a local education agency may analyze air monitoring samples collected for clearance purposes by phase contrast microscopy (PCM) to confirm completion of removal, encapsulation, or enclosure of ACBM that is greater than small-scale, short-duration and less than or equal to 160 square feet or 260 linear feet. The action shall be considered complete when the results of samples collected in the affected functional space and analyzed by phase contrast microscopy using the National Institute for Occupational Safety and Health (NIOSH) Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987, show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantitation for PCM (0.01 fibers per cubic centimeter (0.01 f/cm ^{3}) of air). The method is available at the Office of the Federal Register Information Center, 11th and L St., NW., Room 8401, Washington, DC 20408, and the EPA OPTS Reading Room, Rm. C004 Northeast Mall, 401 M St., SW., Washington, DC 20460. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. The method is incorporated as it exists on the effective date of this rule, and a notice of any change to the method will be published in the Federal Register.

(6) Until October 7, 1989, a local education agency may analyze air monitoring samples collected for clearance purposes by PCM to confirm completion of removal, encapsulation, or enclosure of ACBM that is less than or equal to 3,000 square feet or 1,000 linear feet. The action shall be considered complete when the results of samples collected in the affected functional space and analyzed by PCM using the NIOSH Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987, show that the concentration of fibers for each of the five samples is less than or equal to a limit quantitation for PCM (0.01 fibers per cubic centimeter, 0.01 f/cm ^{3}). The method is available at the Office of the Federal Register, 11th and L St., NW., Room 8301, Washington, DC 20408, and in the EPA OPTS Reading Room, Rm. C004 Northeast Mall, 401 M St., SW., Washington, DC 20460. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. The method is incorporated as it exists on the effective date of this rule and a notice of any change to the method will be published in the Federal Register.

(7) From October 8, 1989, to October 7, 1990, a local education agency may analyze air monitoring samples collected for clearance purposes by PCM to confirm completion of removal, encapsulation, or enclosure of ACBM that is less than or equal to 1,500 square feet or 500 linear feet. The action shall be considered complete when the results of samples collected in the affected functional space and analyzed by PCM using the NIOSH Method 7400 entitled "Fibers" published in the NIOSH Manual of Analytical Methods, 3rd Edition, Second Supplement, August 1987, show that the concentration of fibers for each of the five samples is less than or equal to a limit of quantitation for PCM (0.01 fibers per cubic centimeter, 0.01 f/cm ^{3}). The method is available at the Office of the Federal Register, 11th and L St., NW., Room 8301, Washington, DC 20408, and in the EPA OPTS Reading Room, Rm. C004 Northeast Mall, 401 M St., SW., Washington, DC 20460. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. The method is incorporated as it exists on the effective date of this rule and a notice of any change to the method will be published in the Federal Register.

(8) To determine the amount of ACBM affected under paragraphs (i) (5), (6), and (7) of this section, the local education agency shall add the total square or linear footage of ACBM within the containment barriers used to isolate the functional space for the action to remove, encapsulate, or enclose the ACBM. Contiguous portions of material subject to such action conducted concurrently or at approximately the same time within the same school building shall not be separated to qualify under paragraphs (i) (5), (6), or (7) of this section.

§ 763.91 Operations and maintenance.

(a) *Applicability.* The local education agency shall implement an operations, maintenance, and repair (O&M) program under this section whenever any friable ACBM is present or assumed to be present in a building that it leases, owns, or otherwise uses as a school building. Any material identified as nonfriable ACBM or nonfriable assumed ACBM must be treated as friable ACBM for purposes of this section when the material is about to become friable as a result of activities performed in the school building.

(b) *Worker protection.* The protection provided by EPA at 40 CFR 763.121 for worker protection during asbestos abatement projects is extended to employees of local education agencies who perform operations, maintenance, and repair (O&M) activities involving ACM and who are not covered by the OSHA asbestos construction standard at 29 CFR 1926.58 or an asbestos worker approved by OSHA under section 19 of the Occupational Safety and Health Act. Local education agencies may consult

553